

Most Frequently Occurring Classifications of Patents Returned  
From A Search of 09889171 on May 08, 2003

Original Classifications

4 700/252  
3 73/628  
3 700/259  
2 294/86.4  
2 318/568.1  
2 318/568.18  
2 369/44.28  
2 378/79

Cross-Reference Classifications

8 901/9  
6 901/47  
5 219/124.34  
5 901/42  
3 73/652  
3 73/862.637  
3 118/500  
3 294/902  
3 318/567  
3 318/568.13  
3 318/568.15  
3 318/568.16  
3 318/569  
3 369/30.17  
3 369/44.28  
3 369/44.29  
3 700/245  
3 700/259  
3 901/2  
3 901/3  
3 901/46  
2 72/240

2 73/862.043  
2 73/862.046  
2 73/862.541  
2 264/540  
2 294/86.4  
2 318/561  
2 318/568.19  
2 318/573  
2 318/577  
2 356/620  
2 369/275.3  
2 369/275.4  
2 369/43  
2 414/730  
2 425/532  
2 700/45  
2 700/58  
2 700/59  
2 700/63  
2 700/88  
2 901/10  
2 901/14  
2 901/15  
2 901/16  
2 901/43  
2 901/5  
2 901/50

#### Combined Classifications

8 901/9  
6 219/124.34  
6 700/259  
6 901/47  
5 369/44.28  
5 700/252  
5 901/42  
4 294/86.4

4 318/567  
4 318/568.13  
3 73/628  
3 73/652  
3 73/862.637  
3 118/500  
3 294/902  
3 318/568.1  
3 318/568.15  
3 318/568.16  
3 318/568.18  
3 318/569  
3 369/275.4  
3 369/30.17  
3 369/44.29  
3 700/245  
3 700/88  
3 901/2  
3 901/3  
3 901/46  
2 29/740  
2 72/10.7  
2 72/240  
2 73/862.043  
2 73/862.046  
2 73/862.541  
2 204/298.15  
2 264/540  
2 318/561  
2 318/568.19  
2 318/573  
2 318/577  
2 356/399  
2 356/620  
2 369/111  
2 369/275.3  
2 369/43

2 378/79  
2 414/730  
2 425/531  
2 425/532  
2 700/247  
2 700/249  
2 700/45  
2 700/58  
2 700/59  
2 700/63  
2 901/10  
2 901/14  
2 901/15  
2 901/16  
2 901/43  
2 901/5  
2 901/50

Titles of Most Frequently Occurring Classifications of Patents Returned  
From A Search of 09889171 on May 08, 2003

8	901/9	(0 OR, 8 XR)
	Class 901 :	ROBOTS
	901/2	ARM MOTION CONTROLLER
	901/9	.Closed loop (sensor feedback controls arm movement)
6	219/124.34	(1 OR, 5 XR)
	Class 219 :	ELECTRIC HEATING
	219/50	METAL HEATING (E.G., RESISTANCE HEATING)
	219/121.11	.By arc
	219/124.1	..With automatic positioning of arc
	219/124.22	...In response to work shape
	219/124.34	....By using probe means
6	700/259	(3 OR, 3 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/90	SPECIFIC APPLICATION, APPARATUS OR PROCESS
	700/245	.Robot control
	700/258	..Having particular sensor
	700/259	...Vision sensor (e.g., camera, photocell)
6	901/47	(0 OR, 6 XR)
	Class 901 :	ROBOTS
	901/46	SENSING DEVICE
	901/47	.Optical
5	369/44.28	(2 OR, 3 XR)
	Class 369 :	DYNAMIC INFORMATION STORAGE OR RETRIEVAL
	369/43	WITH SERVO POSITIONING OF TRANSDUCER ASSEMBLY OVER TRACK COMBINED WITH INFORMATION SIGNAL PROCESSING
	369/44.11	.Optical servo system
	369/44.27	..Initialization/start-up or changing modes of system
	369/44.28	...While track jumping or crossing
5	700/252	(4 OR, 1 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/90	SPECIFIC APPLICATION, APPARATUS OR PROCESS
	700/245	.Robot control
	700/250	..Specific enhancing or modifying technique (e.g., adaptive control)
	700/252	...Interpolation
5	901/42	(0 OR, 5 XR)
	Class 901 :	ROBOTS
	901/30	END EFFECTOR
	901/41	.Tool
	901/42	..Welding
4	294/86.4	(2 OR, 2 XR)

Class 294 : HANDLING: HAND AND HOIST-LINE IMPLEMENTS  
294/86.4 GRAPPLE

4 318/567 (1 OR, 3 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems

4 318/568.13 (1 OR, 3 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/568.1 ..With program recording or composing means  
318/568.11 ...Multifunction manipulator (i.e., Robot)  
318/568.13 ....With particular program teaching method

3 73/628 (3 OR, 0 XR)  
Class 073 : MEASURING AND TESTING  
73/570 VIBRATION  
73/584 .By mechanical waves  
73/596 ..Beamed  
73/627 ...By reflected wave  
73/628 ....Having plural sonic type transmitters or  
receivers transducers

3 73/652 (0 OR, 3 XR)  
Class 073 : MEASURING AND TESTING  
73/570 VIBRATION  
73/649 .Sensing apparatus  
73/652 ..With inertia element

3 73/862.637 (0 OR, 3 XR)  
Class 073 : MEASURING AND TESTING  
73/862 DYNAMOMETERS  
73/862.381 .Responsive to force  
73/862.621 ..By measuring elastic deformation  
73/862.636 ...Specific type of elastic member  
73/862.637 ....Flexible element (e.g., beam, plate, or  
web)

3 118/500 (0 OR, 3 XR)  
Class 118 : COATING APPARATUS  
118/500 WORK HOLDERS, OR HANDLING DEVICES

3 294/902 (0 OR, 3 XR)  
Class 294 : HANDLING: HAND AND HOIST-LINE IMPLEMENTS  
294/902 GRIPPING ELEMENT

3 318/568.1 (2 OR, 1 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/568.1 ..With program recording or composing means

3 318/568.15 (0 OR, 3 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/568.1 ..With program recording or composing means  
318/568.11 ...Multifunction manipulator (i.e., Robot)  
318/568.15 ....With particular interpolation means

3 318/568.16 (0 OR, 3 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/568.1 ..With program recording or composing means  
318/568.11 ...Multifunction manipulator (i.e., Robot)  
318/568.16 ....With particular sensing device

3 318/568.18 (2 OR, 1 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/568.1 ..With program recording or composing means  
318/568.11 ...Multifunction manipulator (i.e., Robot)  
318/568.17 ....With multimode control (e.g., course-fine,  
position-force, etc.)  
318/568.18 .....Including velocity control

3 318/569 (0 OR, 3 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G.,  
SERVOMECHANISMS)  
318/567 .Program- or pattern-controlled systems  
318/569 ..Digital or numerical systems

3 369/275.4 (1 OR, 2 XR)  
Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL  
369/272 STORAGE MEDIUM STRUCTURE  
369/275.1 .Optical track structure (e.g., phase or  
diffracting structure, etc.)  
369/275.4 ..Pit/bubble/groove structure specifies

3 369/30.17 (0 OR, 3 XR)  
Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL  
369/24.01 INFORMATION LOCATION OR REMOTE OPERATOR  
ACTUATED CONTROL  
369/30.01 .Selective addressing of storage medium (e.g.,  
programmed access)  
369/30.03 ..Of optical storage medium  
369/30.1 ...Transducer movement control using recorded  
information indicative of location of information  
(e.g.,  
track address)  
369/30.17 ....Transducer velocity control

3 369/44.29 (0 OR, 3 XR)

Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL  
369/43 WITH SERVO POSITIONING OF TRANSDUCER ASSEMBLY  
OVER TRACK COMBINED WITH INFORMATION SIGNAL

PROCESSING

369/44.11 .Optical servo system  
369/44.27 ..Initialization/start-up or changing modes of  
system  
369/44.29 ...Servo loop gain/switching control

3 700/245 (0 OR, 3 XR)  
Class 700 : DATA PROCESSING: GENERIC CONTROL SYSTEMS OR  
SPECIFIC APPLICATIONS  
700/90 SPECIFIC APPLICATION, APPARATUS OR PROCESS  
700/245 .Robot control

3 700/88 (1 OR, 2 XR)  
Class 700 : DATA PROCESSING: GENERIC CONTROL SYSTEMS OR  
SPECIFIC APPLICATIONS  
700/1 GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS  
700/86 .Having preparation of program  
700/88 ..Playback

3 901/2 (0 OR, 3 XR)  
Class 901 : ROBOTS  
901/2 ARM MOTION CONTROLLER

3 901/3 (0 OR, 3 XR)  
Class 901 : ROBOTS  
901/2 ARM MOTION CONTROLLER  
901/3 .Teaching system

3 901/46 (0 OR, 3 XR)  
Class 901 : ROBOTS  
901/46 SENSING DEVICE

2 29/740 (1 OR, 1 XR)  
Class 029 : METAL WORKING  
29/700 MEANS TO ASSEMBLE OR DISASSEMBLE  
29/729 .Means to assemble electrical device  
29/739 ..Means to fasten electrical component to  
wiring board, base, or substrate  
29/740 ...Chip component

2 72/10.7 (1 OR, 1 XR)  
Class 072 : METAL DEFORMING  
72/6.1 WITH USE OF CONTROL MEANS ENERGIZED IN RESPONSE  
TO ACTIVATOR STIMULATED BY CONDITION SENSOR  
72/6.2 .Metal deforming by use of roller or  
roller-like tool element  
72/8.1 ..Including plural sensors or sensor responsive  
to comparison between plural conditions  
72/10.1 ...Sensing tool or tool-linked part  
72/10.7 ....Sensing roll gap

2 72/240 (0 OR, 2 XR)  
Class 072 : METAL DEFORMING  
72/199 BY USE OF ROLLER OR ROLLER-LIKE TOOL-ELEMENT



72/237 .With carrier for roller-couple or tool-couple

72/240 ..With variation of bite of roller-couple during deformation

2 73/862.043 (0 OR, 2 XR)  
Class 073 : MEASURING AND TESTING  
73/862 DYNAMOMETERS  
73/862.041 .Responsive to multiple loads or load components  
73/862.042 ..Along or about mutually orthogonal axes  
73/862.043 ...Three dimensional (e.g., x, y, z axes)

2 73/862.046 (0 OR, 2 XR)  
Class 073 : MEASURING AND TESTING  
73/862 DYNAMOMETERS  
73/862.041 .Responsive to multiple loads or load components  
73/862.046 ..Transducer array (e.g., columns and rows)

2 73/862.541 (0 OR, 2 XR)  
Class 073 : MEASURING AND TESTING  
73/862 DYNAMOMETERS  
73/862.381 .Responsive to force  
73/862.541 ..Combined

2 204/298.15 (1 OR, 1 XR)  
Class 204 : CHEMISTRY: ELECTRICAL AND WAVE ENERGY  
204/193 APPARATUS  
204/298.01 .Coating, forming or etching by sputtering  
204/298.02 ..Coating  
204/298.15 ...Specified work holder

2 264/540 (0 OR, 2 XR)  
Class 264 : PLASTIC AND NONMETALLIC ARTICLE SHAPING OR TREATING: PROCESSES  
264/500 DIRECT APPLICATION OF FLUID PRESSURE DIFFERENTIAL TO PERMANENTLY SHAPE, DISTORT, OR SUSTAIN WORK

264/523 .Including application of internal fluid pressure to hollow finite length parison to expand same into conformity with female mold part

264/540 ..Including extrusion

2 318/561 (0 OR, 2 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G., SERVOMECHANISMS)  
318/561 .Adaptive or optimizing systems including "bang-bang" servos

2 318/568.19 (0 OR, 2 XR)  
Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS  
318/560 POSITIONAL SERVO SYSTEMS (E.G., SERVOMECHANISMS)

- 318/567 .Program- or pattern-controlled systems
- 318/568.1 ..With program recording or composing means
- 318/568.11 ...Multifunction manipulator (i.e., Robot)
- 318/568.19 ....With particular coordinate transformation means

2 318/573 (0 OR, 2 XR)

- Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS
- 318/560 POSITIONAL SERVO SYSTEMS (E.G., SERVOMECHANISMS)
- 318/567 .Program- or pattern-controlled systems
- 318/569 ..Digital or numerical systems
- 318/570 ...Contouring systems
- 318/573 ....With interpolating means

2 318/577 (0 OR, 2 XR)

- Class 318 : ELECTRICITY: MOTIVE POWER SYSTEMS
- 318/560 POSITIONAL SERVO SYSTEMS (E.G., SERVOMECHANISMS)
- 318/567 .Program- or pattern-controlled systems
- 318/575 ..Multiple axes analog systems
- 318/576 ...Nonmechanical line, seam or edge followers
- 318/577 ....Optical or photoelectric line followers

2 356/399 (1 OR, 1 XR)

- Class 356 : OPTICS: MEASURING AND TESTING
- 356/399 BY ALIGNMENT IN LATERAL DIRECTION

2 356/620 (0 OR, 2 XR)

- Class 356 : OPTICS: MEASURING AND TESTING
- 356/614 POSITION OR DISPLACEMENT
- 356/615 .Position transverse to viewing axis
- 356/620 ..Special mark or target on object

2 369/111 (1 OR, 1 XR)

- Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL
- 369/99 SPECIFIC DETAIL OF INFORMATION HANDLING PORTION OF SYSTEM
- 369/100 .Radiation beam modification of or by storage medium
- 369/111 ..Spiral or helical track

2 369/275.3 (0 OR, 2 XR)

- Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL
- 369/272 STORAGE MEDIUM STRUCTURE
- 369/275.1 .Optical track structure (e.g., phase or diffracting structure, etc.)
- 369/275.3 ..Track data format/layout

2 369/43 (0 OR, 2 XR)

- Class 369 : DYNAMIC INFORMATION STORAGE OR RETRIEVAL
- 369/43 WITH SERVO POSITIONING OF TRANSDUCER ASSEMBLY OVER TRACK COMBINED WITH INFORMATION SIGNAL

PROCESSING

2 378/79 (2 OR, 0 XR)

	Class 378 :	X-RAY OR GAMMA RAY SYSTEMS OR DEVICES
	378/1	SPECIFIC APPLICATION
	378/70	.Diffraction, reflection, or scattering analysis
	378/71	..Diffractometry
	378/79	...Analyte support
2	414/730	(0 OR, 2 XR)
	Class 414 :	MATERIAL OR ARTICLE HANDLING
	414/680	VERTICALLY SWINGING LOAD SUPPORT
	414/729	.Grab
	414/730	..Programmable or condition responsive means controls grab operation
2	425/531	(1 OR, 1 XR)
	Class 425 :	PLASTIC ARTICLE OR EARTHENWARE SHAPING OR TREATING: APPARATUS
	425/522	FEMALE MOLD AND MEANS TO SHAPE PARISON DIRECTLY BY INTERNAL FLUID PRESSURE, (E.G., BLOW MOLD, ETC.)
	425/528	.Including means to prepare parison
	425/531	..Parison severing means
2	425/532	(0 OR, 2 XR)
	Class 425 :	PLASTIC ARTICLE OR EARTHENWARE SHAPING OR TREATING: APPARATUS
	425/522	FEMALE MOLD AND MEANS TO SHAPE PARISON DIRECTLY BY INTERNAL FLUID PRESSURE, (E.G., BLOW MOLD, ETC.)
	425/528	.Including means to prepare parison
	425/532	..Parison forming extruder
2	700/247	(1 OR, 1 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/90	SPECIFIC APPLICATION, APPARATUS OR PROCESS
	700/245	.Robot control
	700/247	..Plural controlled devices or plural nonvision controlling devices
2	700/249	(1 OR, 1 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/90	SPECIFIC APPLICATION, APPARATUS OR PROCESS
	700/245	.Robot control
	700/247	..Plural controlled devices or plural nonvision controlling devices
	700/249	...Plural processors
2	700/45	(0 OR, 2 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/1	GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS
	700/28	.Optimization or adaptive control
	700/44	..Feed-forward (e.g., predictive)
	700/45	...Combined with feedback
2	700/58	(0 OR, 2 XR)
	Class 700 :	DATA PROCESSING: GENERIC CONTROL SYSTEMS OR

		SPECIFIC APPLICATIONS
	700/1	GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS
	700/56	.Digital positioning (other than machine tool)
	700/57	..Alignment or registration
	700/58	...Having position marking
2	700/59	(0 OR, 2 XR)
	Class	700 : DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/1	GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS
	700/56	.Digital positioning (other than machine tool)
	700/57	..Alignment or registration
	700/59	...Having optical sensing (e.g., image projection)
2	700/63	(0 OR, 2 XR)
	Class	700 : DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS
	700/1	GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS
	700/56	.Digital positioning (other than machine tool)
	700/61	..Multiple axis motion or path control
	700/63	...Including velocity or acceleration control
2	901/10	(0 OR, 2 XR)
	Class	901 : ROBOTS
	901/2	ARM MOTION CONTROLLER
	901/9	.Closed loop (sensor feedback controls arm movement)
	901/10	..Sensor physically contacts and follows work contour
2	901/14	(0 OR, 2 XR)
	Class	901 : ROBOTS
	901/14	ARM MOVEMENT (SPATIAL)
2	901/15	(0 OR, 2 XR)
	Class	901 : ROBOTS
	901/14	ARM MOVEMENT (SPATIAL)
	901/15	.Jointed arm
2	901/16	(0 OR, 2 XR)
	Class	901 : ROBOTS
	901/14	ARM MOVEMENT (SPATIAL)
	901/16	.Cartesian (X-Y-Z arm)
2	901/43	(0 OR, 2 XR)
	Class	901 : ROBOTS
	901/30	END EFFECTOR
	901/41	.Tool
	901/43	..Spray painting or coating
2	901/5	(0 OR, 2 XR)
	Class	901 : ROBOTS

901/2            ARM MOTION CONTROLLER  
901/3            .Teaching system  
901/5            ..Machine driven lead through

2   901/50            (0 OR, 2 XR)  
     Class   901 :   ROBOTS  
     901/50           MISCELLANEOUS

5204814 99  
5276777 99  
5565749 99  
6404849 99  
5390288 80  
5540821 80  
6111930 80  
5438418 76  
4427158 73  
4546940 73  
4552397 73  
4617502 73  
4831549 73  
4852018 73  
4937848 73  
4941106 73  
4987356 73  
5006999 73  
5264178 73  
5288224 73  
5314722 73  
5426625 73  
5553500 73  
5587470 73  
5600627 73  
5604314 73  
5796610 73  
5832415 73  
5974908 73  
6000523 73  
6018507 73  
6055218 73  
6091695 73  
RE37065 73  
3805702 70  
4244115 70  
4281342 70

4283930 70  
4317571 70  
4343167 70  
4365326 70  
4409650 70  
4421450 70  
4445184 70  
4456378 70  
4480280 70  
4487127 70  
4491719 70  
4507594 70  
4525918 70  
4535695 70  
4541062 70  
4540924 70  
4541193 70  
4543699 70  
4547665 70  
4553035 70  
4572011 70  
4579058 70  
4580350 70  
4590577 70  
4595481 70  
4596076 70  
4600869 70  
4601637 70  
4604561 70  
4607358 70  
4613803 70  
4615023 70  
4633383 70  
4633059 70  
4633414 70  
4761595 70  
4764048 70

4769546 70  
4769583 70  
4774805 70  
4779155 70  
4788482 70  
4789970 70  
4791588 70  
4794584 70  
4796598 70  
4797835 70  
4803640 70  
4809885 70  
4815780 70  
4817697 70  
4817954 70  
4819514 70  
4821673 70  
4828263 70  
4839876 70  
4843711 70  
4844624 70  
4845834 70  
4850783 70  
4860436 70  
4866362 70  
4867207 70